CLAIMS

1. One or more processor-accessible media comprising processor-executable instructions that, when executed, direct a device to perform actions comprising:

comparing an accuracy indicator to at least one threshold, the accuracy indicator corresponding to a reference macroblock selected for a target macroblock;

ascertaining a refinement case from a plurality of refinement cases based on the comparing, each refinement case of the plurality of refinement cases defining a plurality of test points in relation to the reference macroblock; and

analyzing the ascertained refinement case with regard to the target macroblock.

2. The one or more processor-accessible media as recited in claim 1, wherein the accuracy indicator comprises a sum of absolute differences (SAD) value.

3. The one or more processor-accessible media as recited in claim 1, wherein the action of comparing comprises an action of:

comparing the accuracy indicator to at least two thresholds.

4. The one or more processor-accessible media as recited in claim 3, wherein the at least two thresholds comprise a first threshold that is set between 3500 and 4500 and a second threshold that is set between 5500 and 6500.

5. The one or more processor-accessible media as recited in claim 3, wherein the at least two thresholds comprise a first threshold and a second threshold, with the second threshold greater than the first threshold; and wherein the action of comparing further comprises an action of:

determining whether the accuracy indicator is less than the first threshold, is greater than the first threshold but less than the second threshold, or is greater than the second threshold.

6. The one or more processor-accessible media as recited in claim 1, wherein the action of ascertaining comprises an action of:

ascertaining the refinement case from the plurality of refinement cases responsive to a range of values in which the accuracy indicator falls.

7. The one or more processor-accessible media as recited in claim 1, wherein the plurality of refinement cases comprises a first refinement case, a second refinement case, and a third refinement case.

8. The one or more processor-accessible media as recited in claim 7, wherein the first refinement case comprises a first collection of test points in a cross pattern that are one pixel from a central pixel, the second refinement case comprises a second collection of test points in a cross pattern and in an "X" pattern that are one pixel from a central pixel, and the third refinement case comprises a third collection of test points in a cross pattern and in an "X" pattern that are two pixels from a central pixel.

9. The one or more processor-accessible media as recited in claim 1, wherein the action of analyzing comprises actions of:

determining a respective accuracy indicator for each respective test point of the ascertained refinement case to create a collection of accuracy indicators; and

selecting the best accuracy indicator from the collection of accuracy indicators, the selected best respective accuracy indicator associated with its respective test point.

10. The one or more processor-accessible media as recited in claim 9, comprising the processor-executable instructions that, when executed, direct the device to perform a further action comprising:

forwarding a motion vector that corresponds to the respective test point that is associated with the selected best respective accuracy indicator.

11. The one or more processor-accessible media as recited in claim 9, wherein the collection of accuracy indicators includes an accuracy indicator of the central pixel, wherein the accuracy indicator of the central pixel is the accuracy indicator corresponding to the reference macroblock selected for the target macroblock.

12. The one or more processor-accessible media as recited in claim 1, comprising the processor-executable instructions that, when executed, direct the device to perform a further action comprising:

determining a set of accuracy indicators for a set of motion vector candidate predictors with regard to the target macroblock.

13. The one or more processor-accessible media as recited in claim 12, comprising the processor-executable instructions that, when executed, direct the device to perform a further action comprising:

selecting the best accuracy indicator from the set of accuracy indicators, the selected best accuracy indicator comprising the accuracy indicator corresponding to the reference macroblock selected for the target macroblock.

14. The one or more processor-accessible media as recited in claim 12, wherein the set of motion vector candidate predictors comprises three motion vectors plus a null vector.

15. The one or more processor-accessible media as recited in claim 12, wherein the set of motion vector candidate predictors comprises at least one motion vector that is temporally related to the target macroblock and spatially identical and at least one motion vector that is spatially related to the target macroblock and temporally identical.

16. The one or more processor-accessible media as recited in claim 12, wherein the set of motion vector candidate predictors comprises: (i) a first motion vector that is from a first macroblock that is adjacent to the target macroblock and within a current frame thereof; (ii) a second motion vector that is from a second macroblock that is adjacent to the target macroblock and within the current frame, but orthogonally located with respect to the first motion vector, and (iii) a third motion vector that is from a third macroblock that is aligned with the target macroblock but located in a reference frame.

17. The one or more processor-accessible media as recited in claim 1, wherein the processor-executable instructions comprise at least part of video encoding software.

18. The one or more processor-accessible media as recited in claim 1, wherein the one or more processor-accessible media comprise at least one of (i) one or more storage media and (ii) one or more transmission media.

19. A method comprising:

determining if an accuracy indicator is less than a threshold, the accuracy indicator corresponding to a reference macroblock selected for a target macroblock;

if so, analyzing a first refinement case to determine whether a better reference macroblock exists in a first collection of test reference macroblocks; and

if not, analyzing a second refinement case to determine whether a better reference macroblock exists in a second collection of test reference macroblocks.

20. The method as recited in claim 19, wherein the analyzing a first refinement case comprises:

analyzing four test points that are adjacent to a central point, the central point established by the reference macroblock that is selected for the target macroblock.

21. The method as recited in claim 19, wherein the analyzing a second refinement case comprises:

analyzing eight test points that are adjacent to a central point, the central point established by the reference macroblock that is selected for the target macroblock.

22. The method as recited in claim 19, further comprising:

determining if the accuracy indicator is greater than another threshold; and

if so, analyzing a third refinement case to determine whether a better reference macroblock exists in a third collection of test reference macroblocks.

23. The method as recited in claim 22, wherein the analyzing a third refinement case comprises:

analyzing eight test points that are separated by one pixel from a central point, the central point established by the reference macroblock that is selected for the target macroblock.

24. The method as recited in claim 19, further comprising:

determining a set of accuracy indicators for a set of motion vector candidate predictors with regard to the target macroblock; and

selecting the best accuracy indicator from the set of accuracy indicators, the selected best accuracy indicator comprising the accuracy indicator corresponding to the reference macroblock selected for the target macroblock.

25. One or more processor-accessible media comprising processor-executable instructions that, when executed, direct a device to perform the method as recited in claim 19.

26. A device that is adapted to refine a reference macroblock selection based on at least one threshold and responsive to an accuracy indicator corresponding to the reference macroblock selection.

27. The device as recited in claim 26, wherein the device is configured to refine the reference macroblock selection using at least two thresholds and at least three refinement cases.

28. The device as recited in claim 26, wherein the device is configured to refine the reference macroblock selection using two thresholds and three refinement cases; wherein the two thresholds delineate three ranges for accuracy indication values, and each respective refinement case of the three refinement cases is associated with a respective range of the three ranges.

29. The device as recited in claim 26, wherein the accuracy indicator comprises a value that reflects a minimization of a cost function that measures a matching deficiency between the reference macroblock selection and a target macroblock.

30. The device as recited in claim 26, wherein the device is capable of selecting the reference macroblock from a set of candidate predictors, the set of candidate predictors identified in relation to spatial and temporal positioning of a target macroblock.

31. The device as recited in claim 26, wherein the device comprises a mobile device that is capable of performing video encoding for mobile video conferencing.

32. A device comprising:

a candidate selector that is capable of accepting a current macroblock, the candidate selector adapted to select a motion vector candidate from a set of motion vector candidates with regard to the current macroblock using an accuracy indicator corresponding to the selected motion vector candidate;

a refinement case ascertainer that is capable of accepting the selected motion vector candidate and the accuracy indicator corresponding thereto, the refinement case ascertainer adapted to ascertain a refinement case from among a plurality of refinement cases based on a first threshold and a second threshold and responsive to the accuracy indicator; and

a refinement case analyzer that is capable of accepting the ascertained refinement case, the refinement case analyzer adapted to analyze a collection of points defined by the ascertained refinement case with regard to the current macroblock to potentially refine the selected motion vector candidate.

33. The device as recited in claim 32, wherein the candidate selector is further capable of accepting a current frame that includes the current macroblock.

34. The device as recited in claim 32, wherein the candidate selector is further capable of accepting a reference frame, the candidate selector configured to extract reference macroblock candidates from the reference frame in accordance with the set of motion vector candidates.

35. The device as recited in claim 34, wherein the candidate selector is further configured to determine a respective accuracy indicator for each of the reference macroblock candidates; the candidate selector further adapted to select the selected motion vector candidate by selecting the motion vector candidate corresponding to a best respective accuracy indicator.

36. The device as recited in claim 32, wherein the set of motion vector candidates consists of three motion vectors and a null vector.

37. The device as recited in claim 32, wherein the set of motion vector candidates comprises two motion vectors from two macroblocks that are temporally identical and spatially contiguous to the current macroblock and one motion vector from one macroblock that is spatially identical and temporally contiguous to the current macroblock.

38. The device as recited in claim 32, wherein the device further comprises:

an accuracy indicator determiner that determines accuracy indicators for reference macroblocks from a reference frame with regard to the current macroblock of a current frame.

39. The device as recited in claim 38, wherein the accuracy indicator determiner comprises a sum of absolute differences (SAD) determiner.

40. The device as recited in claim 32, wherein the plurality of refinement cases comprises a first case, a second case, and a third case; and wherein the refinement case ascertainer is configured to implement the following selection criteria:

if the accuracy indicator is less than the first threshold, then the first case is ascertained;

if the first threshold is less than the accuracy indicator which is less than the second threshold, then the second case is ascertained; and

if the accuracy indicator is greater than the second threshold, then the third case is ascertained.

41. The device as recited in claim 40, wherein the refinement case analyzer is further adapted (i) to analyze the first case, when ascertained by the refinement case ascertainer, by testing four contiguous points at the selected motion vector candidate on a cross direction, (ii) to analyze the second case, when ascertained by the refinement case ascertainer, by testing eight contiguous points around the selected motion vector candidate, and (iii) to analyze the third case, when ascertained by the refinement case ascertainer, by testing eight points that are around and that are two pixels away from the selected motion vector candidate.

42. The device as recited in claim 32, wherein each refinement case of the plurality of refinement cases defines a plurality of test points.

43. The device as recited in claim 32, wherein the refinement case ascertainer is configured to associate a respective refinement case of the plurality of refinement cases to a respective range of accuracy values of a plurality of ranges of accuracy values, the plurality of ranges of accuracy values at least partially delineated by the first threshold and the second threshold; wherein the refinement case ascertainer is further adapted to ascertain the ascertained refinement case by ascertaining the respective range of accuracy values of the plurality of ranges of accuracy values in which the accuracy indicator belongs.

44. The device as recited in claim 32, wherein the refinement case analyzer is further adapted to refine the selected motion vector candidate when an accuracy indicator corresponding to a point of the collection of points is better than the accuracy indicator corresponding to the selected motion vector candidate.

45. The device as recited in claim 32, wherein the collection of points includes a plurality of test points and a central pixel that corresponds to the selected motion vector candidate.

46. The device as recited in claim 32, wherein the refinement case analyzer is configured to select a best accuracy indicator from a collection of respective accuracy indicators created for respective points of the collection of points.

47. The device as recited in claim 32, wherein the device further comprises:

a discrete cosine transform (DCT) component that performs integer DCT calculations on residual error values in a video encoding operation.

48. The device as recited in claim 32, wherein the device further comprises:

an inverse discrete cosine transform (IDCT) component that performs integer IDCT calculations on transformed and quantized residual error values in a video encoding operation.

49. The device as recited in claim 32, wherein the device comprises a mobile device having a wireless interface.

50. An arrangement for video coding, the arrangement comprising:

ascertainment means for ascertaining a refinement case from a plurality of refinement cases based on at least one threshold and responsive to an accuracy indicator; and

analysis means for analyzing the ascertained refinement case with regard to a target macroblock to produce a motion vector.

51. The arrangement as recited in claim 50, further comprising:

selection means for selecting a reference macroblock, which corresponds to the accuracy indicator, from a plurality of reference macroblock candidates that are identified by a set of candidate motion vector predictors.

52. The arrangement as recited in claim 50, wherein the ascertainment means comprises:

comparison means for comparing the accuracy indicator to the at least one threshold; the at least one threshold delineating two ranges of values for accuracy indicators, each range of the two delineated ranges associated with a refinement case of the plurality of refinement cases.

53. The arrangement as recited in claim 50, wherein the analysis means comprises:

determination means for determining a most accurate test point from a plurality of test points that are defined by the ascertained refinement case in relation to a reference macroblock that corresponds to the accuracy indicator.

54. The arrangement as recited in claim 50, wherein the arrangement comprises at least one device.

55. The arrangement as recited in claim 50, wherein the arrangement comprises one or more processor-accessible media.

56. One or more processor-accessible media comprising processor-executable instructions that, when executed, direct a device to perform actions comprising:

determining if two chrominance sums have magnitudes that are each less than a first product and four luminance sums have magnitudes that are each less than a second product; and

if so, forwarding all zero values for a macroblock.

57. The one or more processor-accessible media as recited in claim 56, comprising the processor-executable instructions that, when executed, direct the device to perform a further action comprising:

if it is determined that the two chrominance sums have magnitudes that are each less than the first product and that the four luminance sums have magnitudes that are each less than the second product in the action of determining, disabling a discrete cosine transform (DCT) component and a quantization component.

58. The one or more processor-accessible media as recited in claim 56, comprising the processor-executable instructions that, when executed, direct the device to perform a further action comprising:

if it is determined that the two chrominance sums have magnitudes that are not each less than the first product or that the four luminance sums have magnitudes that are not each less than the second product in the action of determining, permitting transformed and quantized versions of residual error values to be calculated.

59. The one or more processor-accessible media as recited in claim 56, wherein the two chrominance sums correspond to two chrominance blocks of the macroblock, and the four luminance sums correspond to four luminance blocks of the macroblock.

60. The one or more processor-accessible media as recited in claim 56, wherein a chrominance parameter and a quantization parameter are factors in the first product, and a luminance parameter and the quantization parameter are factors in the second product.

61. The one or more processor-accessible media as recited in claim 60, wherein the chrominance parameter is greater than the luminance parameter.

62. The one or more processor-accessible media as recited in claim 56, wherein at least a portion of the processor-executable instructions comprise at least part of video encoding software.

63. The one or more processor-accessible media as recited in claim 56, wherein the one or more processor-accessible media comprise at least one of (i) one or more storage media and (ii) one or more transmission media.

64. A device that is adapted to bypass transformation and quantization calculations of error values for a macroblock when a magnitude of each DC coefficient for each luminance block having error values for the macroblock is less than a predetermined luminance threshold and a magnitude of each DC coefficient for each chrominance block having error values for the macroblock is less than a predetermined chrominance threshold.

65. The device as recited in claim 64, wherein the predetermined luminance threshold differs from the predetermined chrominance threshold.

66. The device as recited in claim 64, wherein the predetermined luminance threshold comprises a product of a quantization parameter and a luminance parameter, and the predetermined chrominance threshold comprises a product of the quantization parameter and a chrominance parameter.

67. A method comprising:

accepting a plurality of chrominance error values and a plurality of luminance error values for a macroblock;

adding at least portions of the plurality of chrominance error values together to produce a first chrominance sum and a second chrominance sum;

determining if the first chrominance sum and the second chrominance sum have magnitudes that are each less than a chrominance product, the chrominance product including as factors a quantization parameter and a chrominance parameter;

if not,

permitting the plurality of chrominance error values and the plurality of luminance error values to be transformed and quantized;

if so,

adding at least portions of the plurality of luminance error values together to produce a first luminance sum, a second luminance sum, a third luminance sum, and a fourth luminance sum;

determining if the first luminance sum, the second luminance sum, the third luminance sum, and the fourth luminance sum have magnitudes that are each less than a luminance product, the luminance product including as factors the quantization parameter and a luminance parameter;

if not,

permitting the plurality of chrominance error values and the plurality of luminance error values to be transformed and quantized; and

if so,

preventing the plurality of chrominance error values and the plurality of luminance error values from being transformed and quantized.

68. The method as recited in claim 67, wherein the preventing comprises at least one of:

forwarding all zero values as error values of the macroblock; and

disabling a discrete cosine transform (DCT) component and a quantization component with respect to the plurality of chrominance error values and the plurality of luminance error values for the macroblock.

69. The method as recited in claim 67, wherein the chrominance parameter equals sixteen (16), and the luminance parameter equals eight (8).

70. An arrangement for video coding, comprising:

determination means for determining if a macroblock is likely to have all zero quantized error values responsive to a plurality of chrominance error values and a plurality of luminance error values for the macroblock; and

bypass means for bypassing transformation and quantization operations for the plurality of chrominance error values and the plurality of luminance error values if the determination means determines that the macroblock is likely to have all zero quantized error values.

71. The arrangement as recited in claim 70, wherein the determination means performs a determination based, at least in part, on a chrominance parameter and a luminance parameter; wherein the chrominance parameter and the luminance parameter are not equal.

72. The arrangement as recited in claim 70, wherein the bypass means comprises means for forwarding all zero values in place of transformed and quantized error values of the macroblock; and

wherein the arrangement further comprises:

switch means for providing the all zero values to a variable length coding component if the determination means determines that the macroblock is likely to have all zero quantized error values.

73. A device comprising:

at least one summing component that is capable of accepting a plurality of chrominance error values and a plurality of luminance error values for a macroblock, the at least one summing component adapted to produce two chrominance sums and four luminance sums from the plurality of chrominance error values and the plurality of luminance error values;

a chrominance parameter;

a luminance parameter; and

a predictive component that is capable of accepting the two chrominance sums, the four luminance sums, the chrominance parameter, and the luminance parameter; the predictive component adapted to forecast whether the macroblock is likely to have all zero quantized error values from the two chrominance sums, the four luminance sums, the chrominance parameter, and the luminance parameter.

74. The device as recited in claim 73, wherein the predictive component is further adapted to cause transformation and quantization calculations on the plurality of chrominance error values and the plurality of luminance error values for the macroblock to be bypassed if the macroblock is forecast as being likely to have all zero quantized error values.

75. The device as recited in claim 73, wherein the predictive component is further adapted to cause all zero values for the macroblock to be forwarded if the macroblock is forecast as being likely to have all zero quantized error values.

76. The device as recited in claim 73, wherein the predictive component is configured to forecast whether the macroblock is likely to have all zero quantized error values based on (i) a first criterion involving the two chrominance sums and a product of the chrominance parameter and a quantization parameter and (ii) a second criterion involving the four luminance sums and a product of the luminance parameter and the quantization parameter.

77. The device as recited in claim 76, wherein the luminance parameter is less than the chrominance parameter so that the second criterion is stricter than the first criterion.

78. A device comprising:

a refinement case ascertainer adapted to ascertain a refinement case from among a plurality of refinement cases based on a first threshold and a second threshold and responsive to an accuracy indicator that corresponds to a selected motion vector candidate;

a refinement case analyzer adapted to analyze a collection of points that are defined by the ascertained refinement case with regard to a current macroblock to potentially refine the selected motion vector candidate and to produce a motion vector identifying a reference macroblock for the current macroblock;

a difference component adapted to determine a plurality of chrominance error values and a plurality of luminance error values for the current macroblock with respect to the reference macroblock;

at least one summing component adapted to produce two chrominance sums and four luminance sums from the plurality of chrominance error values and the plurality of luminance error values; and

a predictive component adapted to forecast whether the current macroblock is likely to have all zero quantized error values based on the two chrominance sums, the four luminance sums, a chrominance parameter, and a luminance parameter.

79. The device as recited in claim 78, wherein the plurality of refinement cases comprises a first case, a second case, and a third case; and wherein the refinement case ascertainer is configured to implement the following selection criteria:

if the accuracy indicator is less than the first threshold, then the first case is ascertained;

if the first threshold is less than the accuracy indicator which is less than the second threshold, then the second case is ascertained; and

if the accuracy indicator is greater than the second threshold, then the third case is ascertained.

80. The device as recited in claim 79, wherein the refinement case analyzer is further adapted (i) to analyze the first case, when ascertained by the refinement case ascertainer, by testing four contiguous points at the selected motion vector candidate on a cross direction, (ii) to analyze the second case, when ascertained by the refinement case ascertainer, by testing eight contiguous points around the selected motion vector candidate, and (iii) to analyze the third case, when ascertained by the refinement case ascertainer, by testing eight points that are around and that are two pixels away from the selected motion vector candidate.

81. The device as recited in claim 78, wherein the refinement case ascertainer is configured to associate a respective refinement case of the plurality of refinement cases to a respective range of accuracy values of a plurality of ranges of accuracy values, the plurality of ranges of accuracy values at least partially delineated by the first threshold and the second threshold; wherein the refinement case ascertainer is further adapted to ascertain the ascertained refinement case by ascertaining the respective range of accuracy values of the plurality of ranges of accuracy values in which the accuracy indicator belongs.

82. The device as recited in claim 78, further comprising:

a candidate selector adapted to select the selected motion vector candidate from a set of motion vector candidates with regard to the current macroblock using the accuracy indicator corresponding to the selected motion vector candidate.

83. The device as recited in claim 82, wherein the candidate selector is configured to extract reference macroblock candidates from a reference frame in accordance with the set of motion vector candidates.

84. The device as recited in claim 83, wherein the candidate selector is further configured to determine a respective accuracy indicator for each of the reference macroblock candidates; and the candidate selector is further adapted to select the selected motion vector candidate by selecting the motion vector candidate from the set of motion vector candidates that identifies a respective reference macroblock candidate corresponding to a best respective accuracy indicator.

85. The device as recited in claim 78, wherein the predictive component is further adapted to cause transformation and quantization calculations on the plurality of chrominance error values and the plurality of luminance error values for the current macroblock to be bypassed if the current macroblock is forecast as being likely to have all zero quantized error values.

86. The device as recited in claim 85, further comprising:

a discrete cosine transform (DCT) component that performs integer DCT calculations on the plurality of chrominance error values and the plurality of luminance error values if not bypassed by the predictive component.

87. A device comprising:

at least one processor; and

one or more media including processor-executable instructions that are capable of being executed by the at least one processor, the processor-executable instructions adapted to direct the device to perform actions comprising:

comparing an accuracy indicator to at least one threshold, the accuracy indicator corresponding to a reference macroblock candidate selected for a target macroblock;

ascertaining a refinement case from a plurality of refinement cases based on the comparing, each refinement case of the plurality of refinement cases defining a plurality of test points in relation to the reference macroblock candidate;

analyzing the ascertained refinement case with regard to the target macroblock to produce a motion vector that identifies a potentially-refined reference macroblock;

determining a plurality of chrominance error values and a plurality of luminance error values for the target macroblock with respect to the potentially-refined reference macroblock;

calculating two chrominance sums from the plurality of chrominance error values and four luminance sums from the plurality of luminance error values;

determining if the two chrominance sums have magnitudes that are each less than a first product and the four luminance sums have magnitudes that are each less than a second product; and

if so, forwarding all zero values for the target macroblock.

88. The device as recited in claim 87, wherein the accuracy indicator comprises a sum of absolute differences (SAD) value.

89. The device as recited in claim 87, wherein the processor-executable instructions are adapted to direct the device to perform a further action comprising:

if it is determined that the two chrominance sums have magnitudes that are each less than the first product and that the four luminance sums have magnitudes that are each less than the second product, disabling a discrete cosine transform (DCT) component and a quantization component.

90. The device as recited in claim 87, wherein the processor-executable instructions are adapted to direct the device to perform a further action comprising:

if it is determined that the two chrominance sums have magnitudes that are not each less than the first product or that the four luminance sums have magnitudes that are not each less than the second product, permitting transformed and quantized versions of the plurality of chrominance error values and the plurality of luminance error values to be calculated.

91. The device as recited in claim 87, wherein the device comprises a mobile videoconferencing device.

92. The device as recited in claim 87, wherein the device further comprises:

a video camera.

93. The device as recited in claim 87, wherein the analyzing action comprises actions of:

determining a respective accuracy indicator for each respective test point of the ascertained refinement case to create a collection of accuracy indicators; and

selecting the best accuracy indicator from the collection of accuracy indicators, the selected best respective accuracy indicator associated with its respective test point;

wherein the produced motion vector corresponds to the respective test point that is associated with the selected best respective accuracy indicator.

94. A device that is adapted to refine a reference macroblock candidate selection based on at least one threshold and responsive to an accuracy indicator corresponding to the reference macroblock candidate selection using at least two refinement cases, the device configured to analyze an ascertained refinement case of the at least two refinement cases to produce a reference macroblock for a target macroblock; the device capable of calculating four luminance blocks having error values and two chrominance blocks having error values for the target macroblock with respect to the produced reference macroblock; the device further adapted to bypass transformation and quantization calculations of the error values for the target macroblock when a magnitude of each DC coefficient for each luminance block of the four luminance blocks having error values is less than a predetermined luminance threshold and a magnitude of each DC coefficient for each chrominance block of the two chrominance blocks having error values is less than a predetermined chrominance threshold.

95. The device as recited in claim 94, wherein the predetermined luminance threshold comprises a product of a quantization parameter and a luminance parameter, and the predetermined chrominance threshold comprises a product of the quantization parameter and a chrominance parameter.

96. The device as recited in claim 94, wherein the device is configured to select the reference macroblock candidate selection from a set of candidate predictors, the set of candidate predictors identified in relation to spatial and temporal positioning of the target macroblock.